

REMARKS

Claims 28-57, 59, 61-67 and 70-82 are pending; claims 28-57, 59, 61-67 and 70-82 are rejected; claims 41, 44, 57, 62-63 are objected to.

Upon entry of this Amendment, claims 44 and 57 will be canceled, and claims 28-43, 45-56, 59, 61-67 and 70-82 will be pending.

No new matter has been added. Entry of this Amendment is respectfully requested.

I. Claim Objections

At paragraph 4 of the Office Action, claims 44 and 57 are objected to as being of improper multiple dependent form.

The Examiner notes that claims 44 and 57 depend from claims that recite systems, and that because claims 44 and 57 relate to methods, they do not further limit the claims from which they depend.

Included herewith is an amendment to the claims whereby claims 44 and 57 have been canceled, thus making the instant rejection moot.

In view of the amendment to the claims, reconsideration and withdrawal of this rejection is respectfully requested.

II. Claim Rejections Under 35 U.S.C. §102

A. At paragraph 6 of the Office Action, claims 28, 30-32 and 34-45 are rejected under 35 U.S.C. §102(b) as being anticipated by Lindsay et al (USP 5,106,729, issued April 21, 1992).

The Examiner states that Lindsay discloses a system comprising a test sample, DNA or RNA, and one or more metal particles arranged on a solid support, a glass cell pushed onto the substrate, and that the substrate is 420A by 420A and that it is traversed by two molecules. The Examiner further notes that because the claims are drawn to a system, the intended use for the system is given no patentable weight.

Included herewith are amendments to the claims, such that DNA and RNA containing molecules are not encompassed within the scope of the biomolecules recited in claim 28. As Lindsay does not teach a system comprising a test sample, where the biomolecules of the test sample are an amino acid, a peptide, a protein, a lipid or a sugar moiety, Lindsay does not teach each and every limitation of the claims as amended, and thus does not anticipate claims 28, 30-32 and 34-45.

Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

B. At paragraph 7 of the Office Action, claims 46-57, 59, 62-67 and 71-82 are rejected under 35 U.S.C. §102(b) as being anticipated by Lakowicz et al (WO 99/36779, issued July 22, 1999).

Briefly, the Examiner states that Lakowicz discloses a system with each of the elements of the rejected claims. In particular, the Examiner notes that the system of Lakowicz teaches the use of platinum in the metal complexes. The Examiner further notes that because the claims are drawn to a system, the intended use for the system is given no patentable weight.

Included herewith are amendments to the claims, such that platinum is not encompassed within the scope of the metal complexes recited in claims 46 and 67. As Lakowicz does not teach a system comprising metal complexes using any of rhodium, palladium, silver, iridium or gold, Lakowicz does not teach each and every limitation of the claims as amended, and thus does not anticipate claims 46-57, 59, 62-67 and 71-82.

Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

C. At paragraph 9 of the Office Action, claims 28-33 and 36-38 are rejected under 35 U.S.C. §102(e) as being anticipated by Letsinger et al (USP 6,602,669, issued August 5, 2003).

Briefly, the Examiner states that Letsinger discloses a system for amplifying a detection signal, comprising a test sample containing a target nucleic acid which is

captured on a substrate. The Examiner notes that the target molecules are arrayed at discrete positions on a solid surface, and that gold nanoparticles coated with oligonucleotides are immobilized on a glass substrate or plate by hybridization. The Examiner further notes that because the claims are drawn to a system, the intended use for the system is given no patentable weight.

As noted above, included herewith are amendments to the claims such that DNA and RNA containing molecules are not encompassed within the scope of the biomolecules recited in claim 28. As Letsinger does not teach a system comprising a test sample, where the biomolecules of the test sample are an amino acid, a peptide, a protein, a lipid or a sugar moiety, Letsinger does not teach each and every limitation of the claims as amended, and thus does not anticipate claims 28-33 and 36-38.

Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

III. Claim Rejections Under 35 U.S.C. §103

At paragraph 11 of the Office Action, claims 61 and 70 are rejected under 35 U.S.C. §103(a) as being unpatentable over Lakowicz, as applied to claims 46-57, 59, 62-67 and 71-82, in view of Lindsay.

The Examiner refers to the earlier discussion regarding the disclosure of Lakowicz, and admits that Lakowicz does not teach that the metal particle may be silver. The Examiner notes that Lindsay teaches a method of determining a nucleic acid sequence which incorporates a silver metal particle. The Examiner concludes that it would have been *prima facie* obvious to one of ordinary skill in the art to apply the silver particle of Lindsay to the system of Lakowicz to arrive at the present invention. The Examiner contends that the motivation to combine the two disclosures may be found in Lindsay, wherein the superior properties of silver are taught.

Applicants respectfully traverse the rejection as the Examiner has not established a *prima facie* showing of obviousness.

In particular, the skilled artisan would not have been motivated to combine the disclosures of Lakowicz and Lindsay. Lindsay discloses a method of determining the base sequence of a polynucleotide molecule using a scanning tunneling microscope (STM) (col. 2, lines 52-57). The method is based on the use of a modified polynucleotide molecule that contains sulfur in place of oxygen, to which a metal is then complexed (col. 2, lines 58-66; col. 5, lines 27-31). The metal-complexed polynucleotide is then applied to a substrate, and a STM is used to determine the sequence of the polynucleotide, based on electrical conductivity (col. 1, lines 51-62). As discussed in col. 5, lines 36-38, it is believe that the metal bound to the polynucleotide forms “an amalgam” with the substrate (which is preferably gold) that provides enhanced contrast to the STM (see also col. 2, lines 7-11). As discussed at col. 8, lines 59-65, the preferred metal is mercury.

As is clear from the discussion above and a close reading of Lindsay, metal is used in the method of Lindsay to form an amalgam with the substrate on which the polynucleotide sequence is applied. Nowhere in Lindsay is a discussion or suggestion that the metal serves the purpose disclosed in the pending application, namely, enhancement of electromagnetic radiation emission. As such, the skilled artisan would not have been motivated to use the silver of Lindsay in the system recited in the rejected claims.

Moreover, nowhere in Lindsay is a suggestion that silver can produce the “remarkably and unexpected enhanced contrast” as suggest by the Examiner in the Office Action (page 6, third paragraph). There are no experimental examples using silver in Lindsay. Indeed, the only disclosure of the use of silver as a metal to be complexed with the polynucleotide sequence appears to be in claims 2 and 16. Also, as discussed above, mercury is the preferred metal. For these reasons as well, the skilled artisan would not have been motivated to use the silver of Lindsay in the system recited in the rejected claims.

The skilled artisan would also not have had a reasonable expectation of success in using the silver of Lindsay in the system recited in the pending claims. As discussed above, the metal used in Lindsay serves to enhance contrast when STM is performed by

allowing the polynucleotide molecule to form an amalgam with the substrate to which the polynucleotide molecule is applied. Lindsay does not discuss or suggest that the metal enhances electromagnetic radiation emission. As such, the skilled artisan would not have had a reasonable expectation of success (enhancing electromagnetic radiation emission) using silver in view of the teaching of Lindsay.

For these reasons, the Examiner has not established a *prima facie* showing of obviousness and Applicants respectfully request reconsideration and withdrawal of this rejection.

IV. Conclusion

In view of the above amendments and remarks, Applicants respectfully request a Notice of Allowance. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

In the event any variance exists between the amount of fees paid upon filing this document and the Patent Office charges for filing this document, including any fees required under 35 CFR 1.136 for any necessary extension of time to make the filing of this document timely, please charge or credit the difference to Deposit Account No. 13-2725. Further, if these papers are not considered timely filed, then a request is hereby made under 37 CFR 1.136 for the necessary extension of time.

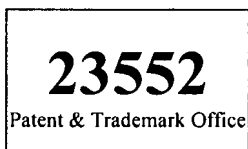
Respectfully submitted,

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